

1 ELECTRO-THERMAL MICROMECHANICAL ACTUATOR FOR  
2 FINITELY POSITIONING A STORAGE DEVICE SLIDER AND  
3 METHODS OF USE AND MANUFACTURE

4 **ABSTRACT OF THE INVENTION**

5 A system and method for controlling the position of a digital data storage device  
6 slider through the use of an electro-thermal micromechanical actuator is disclosed. A  
7 movable member is etched into a face of a slider opposite the air-bearing surface of the  
8 slider. The movable member is substantially freestanding in relation to the slider, having  
9 only a single end connected to the slider. An electrically actuated heater element with two  
10 parallel current paths is disposed on the movable member. One of the current paths is  
11 substantially narrower than the other current path. When a current is passed through the  
12 heater element, the narrower current path heats up more quickly than the wider current path.

13 By varying the current passed through the heater element in a selected manner, a distortion  
14 of the movable member is harnessed and used to create a relative motion in the slider body,  
15 allowing the slider to be quickly and exactly located over the centerline of a track of a  
16 storage device.

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